

WHAT AND WHERE IS NORTH?

By *Doug Smith*

Forester, Alabama Forestry Commission

Reading a map or using a compass can be frustrating at times, especially if you are a beginner. If you work in the woods, are planning a wilderness hike, or are just going on vacation and plan to use a compass or map, there are two things you need to know: “What and Where is North?”

This may sound like a silly question but it is very important when reading a map or using a compass. In orientation there are three different types of north: Grid North, True North, and Magnetic North. Each one is discussed below.

GRID NORTH - Most maps contain parallel, evenly spaced lines that run from the top of the map to the bottom of the map or North and South. These lines will be parallel to the North Arrow that will also be located on the map. The top of the map is usually North (Figure 1). However, some maps (example: Shelby County Alabama, DOT hwy map) have North at a different location (Figure 2). In this situation, the grid lines are still parallel to the North Arrow.



Figure 1



Figure 2

Since grid lines are parallel, they cannot meet at one North point on a globe. The discrepancy relates to straight, parallel lines on the flat map corresponding to the real situation of curved lines on the round earth which are not parallel (see Figure 3). However, grid lines are close enough for most common map uses.

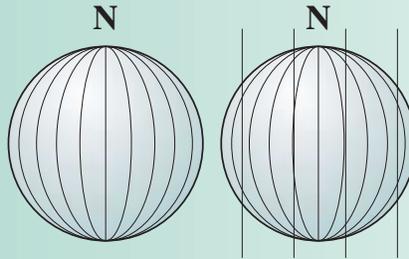


Figure 3

TRUE NORTH is the North Pole where Santa lives or, more technically, one end of the axis upon which the earth turns (Figure 4). For common, homeowner use, Grid Lines point to True North.

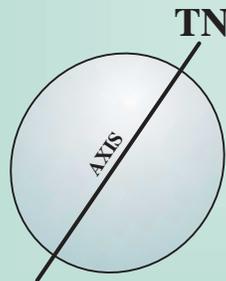


Figure 4

MAGNETIC NORTH - When you use a magnetic compass, one end of the needle points to Magnetic North. The pointer is magnetized and points North and South. You can magnetize a sewing needle by rubbing it on a magnet. Pour water into a glass or other container and

place the needle on top of the water. Don't worry, if you do this carefully, surface tension will prevent the needle from sinking. The magnetic field of the earth will cause the needle to rotate and point North/South.

If a magnetic compass has a needle balanced on a pivot, it will also rotate and point North/South. Notice that one end of the needle has wire wound around it. Which end has the wire wrapping? The magnetic source of the earth pulls the needle towards north and down towards the earth. Therefore the South end has the wire counterweight to keep the needle level. North ends are often identified with an “N” or a colored or luminous tip.



So where is this Magnetic North that makes the compass useful? It continually moves at the speed of about 10 km per year but its generally located in the area of Ellef Ringnes Island in northern Canada (figure 5). A directional problem will exist if you are not directly south of Magnetic North. At any other location, there is a difference between your magnetic compass reading and True North.

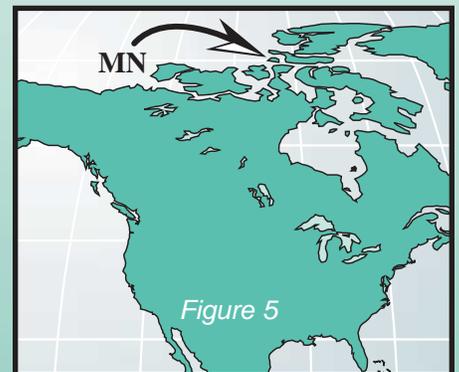


Figure 5

This difference in angles is called Declination (figure 6). In Alabama, the compass needle points to Magnetic North and, if the imaginary line is extended, on to (almost) True North. Unless you are surveying, there is little need to compensate for our local error. However, if you are in Arizona, your magnetic compass needle will point to the same magnetic location as if you were in Alabama, but True North is several degrees to the West of that line of sight. That angle of declina-

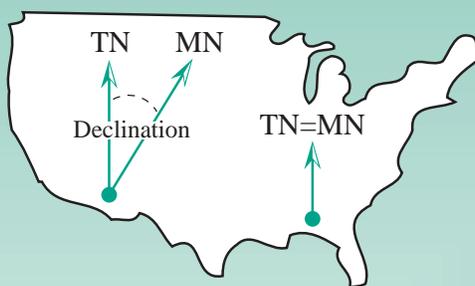


Figure 6

tion is significant and compensation should be made. Some automobiles have a built-in compass. The owner's manual explains how to compensate for the angle of declination depending on where you are in the U.S.

So what does this mean when you use your compass for directions in Alabama? Don't worry about understanding the geological and mapping details. Take your "off-the-shelf" compass, use it . . . and have fun. 🏠

How to Avoid Getting LOST in the Wilderness

by *Tracy L. Nelson*
Area Biologist,
Alabama Department of
Conservation
and Natural Resources

Each year the number of people using North America's wilderness areas is increasing.

Outdoor recreation, with its wide array of activities has grown into a huge industry. Unfortunately, the enthusiasm with which many people take to the woods is not always tempered with the skills and understanding necessary to handle situations that can arise while outdoors. Tragically, the growth in outdoor recreation has led to a steady increase in the number of accidents from carelessness and lack of knowledge.

One mishap that seems to occur often is people becoming lost or stranded in the wilderness, and not being properly prepared for such an event. Even in the Southeast, with its fairly mild winters, a person who is forced to spend the night in the woods without being properly prepared can succumb to hypothermia. This doesn't have to be the case. By learning some basic outdoor skills, and use of some simple equipment, you can lessen the chances of getting lost. Should you happen to get lost, you will be equipped to handle the situation.

One important step is to learn how to read and use a topographic (topo) map and a compass. It is even more helpful to acquire topo maps of the area to be visited, and study them thoroughly. For practice, try some orienteering using topo maps of some local areas. This will give you an idea of how good your skills are. Take the maps and compass anytime you venture into the woods.

Another step is to always carry some basic wilderness survival equipment in

what is known as a "survival pack." For this purpose, a small fanny-type pack is recommended. The survival pack should contain many of the items needed if stranded. It will also aid in finding a way out of the woods. It should contain the following items: waterproof matches, a compass, map, pocketknife, braided nylon fishing line, water purification tablets, small flashlight, small steel cup, fishhooks in a protective box, a whistle, strong cordage, prescription medications taken, spare eye glasses, if worn, and some first aid supplies. These items should be checked regularly for usability and replaced when necessary.

Learning some basic wilderness survival skills is also a good tip. Skills such as shelter-building and fire-making are of utmost importance. These skills can be attained by reading books on wilderness survival and/or attending one of the acclaimed survival schools in the country. It is essential to remember that there is an order of tasks to be followed when faced with a survival situation: 1) build a shelter, 2) find and treat water, 3) build a fire, and 4) find food.

The most important wilderness survival tool, however, is a healthy dose of mental self-control, common sense, and confidence in one's ability. Armed with this knowledge and these skills, one should be able to enter a wilderness situation knowing that he or she will be able to handle surviving in the wild.

For more information, please contact Tracy Nelson, Alabama Department of Conservation and Natural Resources, 4415 County Road 75, Cedar Bluff, Alabama, 35959. 🏠